

## LETTER TO THE EDITOR

## Rare cutaneous reactions after ChAdOx1 (Oxford-AstraZeneca) vaccine: 12 case series from Brazil

### Editor

Brazil is one of the most affected countries by COVID-19 pandemic with 22,2mi confirmed cases and 616 000 deaths until 12/10/21. Population is 68.1% fully vaccinated, and 317mi doses have been administered.<sup>1</sup> Recombinant ChAdOx1 (Oxford-

AstraZeneca) is the most applied vaccine. Cutaneous reactions after ChAdOx1 vaccine are mainly injection-site reactions, acute urticaria and morbilliform rash.<sup>2</sup> We report 12 patients with cutaneous reactions after ChAdOx1 vaccine, nine of which as rare forms.

Gender was equally distributed (six female, six male). Their median age was 52.3 years (range 27–85 years). Cutaneous reactions occurred mainly after ChAdOx1 vaccine first dose (nine patients), from 1 to 7 days after vaccine administration. Dermatologists saw all patients. Nine patients presented rare cutaneous reactions: three lichen planus, three purpura/vasculitis, two erythroderma and one fixed drug eruption (Fig. 1). Maculopapular



**Figure 1** Cutaneous reactions after ChAdOx1 vaccine. Lichenoid eruption on the arm (a) and reactivated at lichen planus previous site (b). Bullous lichen planus (c). Purpura on the leg (d), with distal vesicles and necrosis (e). Erythroderma (f,g). Fixed drug eruption (h). Macular-papular eruption (i,j). Urticaria (k).

**Table 1** Cutaneous reactions to ChAdOx1 vaccine: epidemiology, dermatologic manifestation, management and histology

Patient	Age/Sex	Comorbidities	Doses	Onset postvaccination	Duration of reaction	Dermatologic manifestation	Management	Histology
1	55/M	Diabetes	2nd	5 days	30 days	Lichen planus	Topical corticoid, antihistamine	Dermatitis with superficial perivascular lymphocytic infiltrate
2	30/M	Lichen planus	1st	5 days	21 days	Lichen planus reactivated at disease's previous sites	Topical corticoid, antihistamine	Lichenoid dermatitis with melanoderma
3	63/F	Hypertension, chronic renal disease	1st	7 days	14 days	Bullous lichen planus	Systemic corticoid	Lichenoid dermatitis with melanoderma
4	62/M	Hypertension, hypothyroidism	1st	3 days	14 days	Purpura (idiopathic thrombocytopenic purpura)	Systemic corticoid	No available
5	44/F	Smoking	1st	2 days	10 days	Vasculitis with fever, arthralgia, mononeuritis	Systemic corticoid	Lymphocytic vasculitis
6	64/F	Hypertension, diabetes, heart failure	2nd	7 days	21 days	Vasculitis with vesicles, necrosis	Systemic corticoid	Neutrophilic vasculitis
7	66/M	Hypertension	1st	2 days	30 days	Erythroderma	Systemic corticoid	Spongy dermatitis
8	85/M	Chronic renal disease	2nd	1 day	14 days	Erythroderma	Systemic corticoid	Spongy dermatitis with superficial perivascular infiltrate
9	27/M	HIV	1st	1 day	7 days	Fixed drug eruption	Topical corticoid, antihistamine	Interface dermatitis with melanoderma
10	43/F	None	1st	2 days	12 days	Macular eruption	Expectant	Spongy dermatitis with superficial perivascular infiltrate
11	43/F	Atopic dermatitis	1st	1 day	7 days	Papular eruption	Expectant	Spongy dermatitis with superficial perivascular infiltrate
12	46/F	None	1st	2 days	7 days	Urticaria	Antihistamine	Eosinophilic urticaria

M, male; F, female; HIV, human immunodeficiency virus.

eruption and urticaria accounts for the remaining three cases. Eleven patients were submitted to anatomopathological evaluation of cutaneous lesions (Table 1).

Lichen planus after ChAdOx1 vaccination was observed in three patients. One patient had history of lichen planus, and curiously reactivation occurred exactly in previous sites of the disease. Bullous lichen planus was observed in one case. Due to severity of cutaneous lesions and its symptoms, patient was hospitalized. SARS-CoV-2 is known as a possible trigger for lichen planus.<sup>3</sup> One case of lichen planus arising after mRNA BNT162b2 (Pfizer-BioNTech) was related. Vaccines may upregulate Th1 response, promote IL-2, TNF $\alpha$  and IFN $\gamma$  elevation, which increase basal keratinocyte apoptosis presented in lichen planus.<sup>4</sup> As far as the authors knows, these are the first cases of lichen planus after ChAdOx1 vaccine, and the only case of bullous lichen planus associated to SARS-CoV-2 vaccination.

Three patients presented with purpura. In two cases small vessel vasculitis was histologically confirmed – one associated with systemic symptoms (fever, arthralgia, mononeuritis) and one with severe cutaneous lesions such as vesicles and necrosis. In one case purpura was caused by idiopathic thrombocytopenic purpura (ITP). Vasculitis was observed in 0.7–2.9% after mRNA

vaccine (Pfizer-BioNTech and Moderna) in a study that evaluated 414 patients with cutaneous reactions.<sup>5</sup> No vasculitis was reported in the phase 2/3 clinical trial of Oxford-AstraZeneca vaccine. Only two published cases related vasculitis<sup>6</sup> and IPT after ChAdOx1 vaccine.<sup>7</sup>

Erythroderma was observed in two patients with no previous dermatosis or allergy history. Cutaneous lesions initiated after first and second doses, from 24–48 h postvaccine administration. Laboratorial workup was normal. Both were elderly, required systemic corticotherapy and presented a late (15–30 days) resolution. Erythroderma following mRNA vaccine was related,<sup>8</sup> but there are no reports associating this condition to ChAdOx1 vaccine. Cutaneous reactions associated to COVID-19 vaccination are mostly mild to moderate, oligosymptomatic and self-limited. However, although rare, severe reactions may occur and demand specific treatment. Systemic corticosteroids therapy is controversial after vaccination.<sup>7</sup> Our patients had no improvement with topical treatment and were solely symptomatic. Systemic corticosteroids were prescribed as short as possible, as an exception treatment with suitable response.

One patient with HIV and antiretroviral therapy presented with fixed drug eruption 24 h after ChAdOx1 both first and

second doses. Lesions were typical and histologically confirmed. HIV is known to increase drug reaction risk in 100–1000 times. Two cases of fixed drug eruption following ChAdOx1 and mRNA Moderna vaccines were published.<sup>9</sup>

Cutaneous reactions after COVID-19 vaccination are not common and generally do not contraindicate vaccination cycle accomplishment.<sup>10</sup> Vaccinations benefits supplants by far its inherent risks. Although rare, special forms of cutaneous reactions after COVID-19 vaccination must be recognized due to its severity, patients' impairment and particular management. As the widespread vaccination progress worldwide, these reactions might significantly increase.

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### Conflicts of interest


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### Data availability statement

Data are openly available in a public repository that issues datasets with DOIs.

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